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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SHAH, SAMIR M	
ART UNIT	**PAPER NUMBER**
2856	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

Office Action Summary	Application No.	Applicant(s)
	10/680,306	BURNETTE ET AL.
	Examiner	Art Unit
	Samir M. Shah	2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *35-70* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *35-70* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Please note that the Examiner working on the current Patent Application has been changed.

Response to Arguments

2. Applicant's arguments, see pages 10-11 (sections 1 and 2), filed 12/04/2006, with respect to claims 35-62 have been fully considered and are persuasive. The objection of claims 35-62 has been withdrawn.

3. Applicant's arguments with respect to the 35 U.S.C. 103(a) rejections of claims 35-68 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

4. Claims 35, 40 are objected to because of the following informalities:

(a) As to claim 35, line 3, delete "A multi-component" and replace it with --a multi-component--.

(b) As to claim 40, line 1, delete "fluid comprises" and replace it with --fluid mixture comprises--.

(c) As to claim 41, lines 7-8, delete "an oil or gas well fluid mixture" and replace it with --the fluid mixture-- (for consistency in antecedent basis).

(d) Claim 53 recites the limitation "the outlet conduit" in lines 17-18 of the claim. There is insufficient antecedent basis for this limitation in the claim.

(e) As to claim 53, line 23, delete “of the of the” and replace it with --of the--.

(f) As to claim 61, line 1, delete “measuring system” and replace it with --system--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 35-70 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "appreciable time delay" in claims 35, 41, 53 and 63 is a relative term which renders the claim indefinite. The term "appreciable time delay" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Dependent claims 36-40, 42-52, 54-62 and 64-70 are indefinite for the same reason.

7. Claims 35-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 35, it is not clear as to what particular structure enables "the apparatus" to be "adapted to verify the composition of the fluid mixture in the densimeter by comparison of the measured density to the desired density". The lack of a particular limitation that provides structural support for the apparatus to perform the function of "comparison of the measured density to the desired density" renders the claim indefinite.

Dependent claims 36-40 are indefinite for the same reason.

8. Claims 41-52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 41, it is not clear as to what particular structure enables "the apparatus" to be "adapted to permit adjustment of the mixing ratio based on the measured weight of the fluid mixture". Is the "blending unit" adapted to permit such "adjustment"? If so, how? What particular structural element within the "blending unit" is performing this "adjustment"? The lack of a particular limitation that provides structural support for the apparatus to perform the function of "adjustment of the mixing ratio based on the measured weight of the fluid mixture" renders the claim indefinite.

Dependent claims 41-52 are indefinite for the same reason.

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 35-40 and 53-70 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106), the claims must have either physical transformation and /or a useful, concrete and tangible result. The claims fail to include transformation from one physical state to another. Although the claims appear useful and concrete, there does not appear to be a tangible result claimed. Merely, measuring and comparing would not appear to be sufficient to constitute a tangible result, since the "comparison of the measured density to the desired density" step (claim 35) or the "compare the calculated density with the target fluid mixture density" step (claim 53) or the "comparing the determined density with the desired density" step (claim 63) has not been used in a disclosed practical application nor claimed as made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 35-70 are rejected under 35 U.S.C. 102(b) as being anticipated by Allen (US Patent 5,571,281 henceforth "Allen").

(a) As to claim 35, Allen discloses an apparatus for verifying the composition of a fluid mixture, comprising:

a multi-component oil or gas well fluid mixed according to a desired ratio of components to produce a desired density (column 1, lines 10-15);

a pipeline having a bore for the flow of the fluid mixture comprising:

an inlet pipe/conduit (38) (figure 1; column 4, lines 19-40);

an outlet pipe (40) located downstream from the inlet pipe (38) (figure 1; column 4, lines 19-40);

a densimeter/conduit (22, 24), having a first end and a second end, wherein the first end is flexibly joined to the inlet pipe (38), and the second end is flexibly joined to the outlet pipe (40) for measuring the density of the fluid mixture flowing through the densimeter/conduit (22, 24) with no appreciable time delay (figure 1; column 4, lines 19-40); and

wherein the apparatus is adapted to verify the composition of the fluid mixture in the densimeter/conduit (22, 24) by comparison of the measured density to the desired density (figure 1; column 4, lines 40-65).

(b) As to claim 36, Allen clearly discloses that the densimeter (22, 24) extends in a non-vertical direction (figure 1).

(c) As to claim 37, it is clear from figure 1 that the longitudinal axis of the densimeter (22, 24) is substantially straight from the first end of the densimeter (22, 24) to the second end (figure 1).

(d) As to claim 38, it is clear from figure 1 that the cross-sectional area of the densimeter (22, 24) is uniform for the entire length of the densimeter (22, 24) extending from the first end to the second end (figure 1).

(e) As to claim 39, Allen discloses a proppant slurry/"lead slurry" that has a density greater than approximately the density of water (column 5, line 58 - column 6, line 3).

(f) As to claim 40, Allen discloses the fluid mixture comprising a cement slurry having a density greater than approximately the density of water (column 1, lines 10-15).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. Claims 41-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen as applied to claim 35 above, and further in view of Rondeau et al. (US Patent Application Publication 2002/0093875 A1 henceforth "Rondeau").

(a) As to claim 41, Allen discloses an apparatus for controlling the density of a fluid mixture being used in an oil or gas well, the apparatus comprising:

an inlet pipe/conduit (38) having a downstream end (figure 1; column 4, lines 19-40);

a second pipe/conduit (22) having an upstream end and a downstream end, wherein the upstream end of the second pipe (22) is in register with and flexibly connected to the downstream end of the inlet pipe (38), the second pipe (22) having a bore for the flow of the fluid mixture (figure 1; column 4, lines 19-40);

an outlet pipe (40) having an upstream end, wherein the upstream end of the outlet pipe (40) is in register with and flexibly connected to the downstream end of the second pipe (22) (figure 1; column 4, lines 19-40); and

a blending unit (including mixing tank (10), microprocessor (50)) in communication with the inlet pipe (38) and adapted to mix fluid components according to a known ratio to create the fluid mixture and also adapted to permit adjustment of the mixing ratio based on the measured density of the fluid mixture in the second pipe (40) so that the fluid mixture actually used in the well substantially meets a predetermined fluid density (figure 1; column 4, lines 19-65).

As to claim 41, Allen does not expressly disclose a force transducer capable of measuring the weight of the second pipe (40) while the fluid mixture flows there through. However, Allen discloses the microprocessor (50) being preprogrammed based upon the particular cementing job parameters including density and weight.

Rondeau discloses a “fluid mixing system” for the continuous mixing of cements or other fluids used in oil or gas wells including a mixing system (106), mixing tank (114) and a force transducer/load sensor (122) to indicate the weight of the mixing tank (figure 2; paragraphs 0010, 0020).

It would have been obvious if not inherent, for Allen’s apparatus to include a force transducer/load sensor, as suggested by Rondeau, for weight measurements of the second pipe (40) while the fluid mixture flows there through because this would enable the microprocessor (50) to be preprogrammed based upon the weight of the slurry, as required by Allen (column 4, lines 51-58).

(b) As to claim 42, Rondeau discloses the force transducer/load sensor (122) being positioned below the mixing tank (114) and being capable of supporting the weight of the mixing tank (114) (figure 2; paragraphs 0010, 0020).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Allen's apparatus to include Rondeau's force transducer/load sensor, as mentioned above, and further to position the sensor below the second pipe (22) because this would enable the sensor to function properly as suggested by Rondeau.

(c) As to claim 44, both Allen and Rondeau fail to disclose placing load sensor above the second pipe/mixing tank. However, it has been held that *there would be no invention in shifting a particular element disclosed by a prior art reference to a different position since the operation of the device would not thereby be modified. In re Japikse, 86 USPQ 70 (CCPA 1950). Note that Examiner's contention of obvious choice in design can be overcome if Applicant establishes unexpected results.*

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to position Rondeau's load sensor above the second pipe (22) as an alternative to placing the sensor below the second pipe (22), because either placement would function equivalently and would be a mere design choice.

(d) As to claims 43 and 45, Rondeau's force transducer (122) is a compression type load cell (figure 2; paragraphs 0010, 0020).

(e) As to claim 46, Allen clearly discloses that the second pipe (22) extends in a non-vertical direction (figure 1).

(f) As to claim 47, it is clear from figure 1 that the longitudinal axis of the second pipe (22) is substantially straight from the upstream end of the second pipe (22) to the downstream end (figure 1).

(g) As to claim 48, Allen does not expressly disclose the longitudinal axis of the second pipe (22) being curved. However, it is held that *when Applicant has presented no argument which convinces us that the particular shape/configuration of their apparatus is significant or is anything more than one of numerous configurations a person of ordinary skill in the art would find obvious for the purpose of providing a pipe for the flow of an oil or gas well fluid mixture. In re Dailey, 149 USPQ 47 (CCPA 1976). See Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459.*

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Allen's second pipe (22) in order to make the longitudinal axis of the second pipe (22) curved from the upstream end of the pipe (22) to the downstream end, because this would be a mere design choice.

(h) As to claim 49, it is clear from figure 1 that the cross-sectional area of the second pipe (22) is uniform for the entire length of the second pipe (22) extending from the upstream end to the downstream end (figure 1).

(i) As to claim 50, Allen does not require the cross-sectional area of the second pipe (22) to be uniform for the entire length of the pipe (22) extending from the upstream end to the downstream end. Therefore, as mentioned in section (g) above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Allen's second pipe (22) in order to make its cross-sectional area non-uniform, because this would be a mere design choice.

(j) As to claim 51, Allen discloses a proppant slurry/"lead slurry" that has a density greater than approximately the density of water (column 5, line 58 - column 6, line 3).

(k) As to claim 52, Allen discloses the fluid mixture comprising a cement slurry having a density greater than approximately the density of water (column 1, lines 10-15).

Allowable Subject Matter

16. Claims 53-70 would be allowable if claims 53 and 63 are rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

17. As to claim 53, Allen discloses a similar invention as set forth above in the rejection of claims 35 and 41. However, Allen does not expressly disclose a weight measuring device, a first flexible connector or a second flexible connector as defined in claim 53 and in combination with the rest of the limitations in the claim.

As to claim 63, Allen does not expressly disclose calibrating a weight measuring unit as defined in claim 63 and in combination with the rest of the limitations in the claim.

Therefore, the prior art neither discloses nor provides the motivation to combine the above-mentioned limitations in claims 53 and 63, in combination with the rest of the limitations in the claims, respectively.

Conclusion

18. The prior art made of record and not relied upon, cited in the attached 892 form, is considered pertinent to applicant's disclosure.

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samir M. Shah whose telephone number is (571) 272-2671. The examiner can normally be reached on Monday-Friday 9:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Samir M. Shah
Art Unit 2856
03/09/2007

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